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Crowding more pigs into a nursing pen than is recommended is a fairly common practice among producers who have limited facilities or high overhead costs. The effect of this crowding on performance has not been determined. The value of antibiotics in the nursing pig's diet has been well documented. This study was designed to evaluate the effect of pen space and antibiotics and the possible interaction of the two as related to pig performance.

Procedure

Two hundred eighty crossbred pigs, approximately 4 weeks of age, were allotted to seven replications of four management treatments. They were allotted on the basis of weight and ancestry. The four treatments were:

Treatment 1 -- No antibiotics, 2.5 square feet of pen space per pig
Treatment 2 -- No antibiotics, 1.5 square feet of pen space per pig
Treatment 3 -- Aureo SP-250, 2.5 square feet of pen space per pig
Treatment 4 -- Aureo SP-250, 1.5 square feet of pen space per pig

Differences in square feet of pen space were accomplished by housing either 8 or 12 pigs in the same size pen. Adequate feeder and waterer space was provided. The pigs were fed an 18% protein corn-soybean meal diet during the entire trial. They were housed in an environmentally controlled facility on raised floors which were either plastic or vinyl coated expanded metal. Temperature was maintained at approximately 80° F at the beginning of the trial and lowered to 75° F near the end of the trial.

Results

The performance of the pigs is summarized in table 1 and the means for the main effects, pen space and antibiotics, are shown in table 2. Average daily gain was significantly higher for pigs receiving antibiotics (.50 vs .44 lb/day). Gains were the same regardless of pen space provided when averaged across antibiotic treatments. Differences in daily feed consumption were not significant. Feed efficiency, however, favored the pigs which received antibitoics and also the pigs which were provided more pen space. The poorest feed efficiency and gain were obtained from the pigs which had the least amount of pen space and received no antibiotic. Feed efficiency was the only criteria measured in which a pen space-antibiotic interaction occurred. It would appear from these data that pigs from 16 to 30 pounds perform adequately in crowded conditions (1.5 sq ft/pig) when Aureo SP-250 is present in the diet.

TABLE 1. PERFORMANCE OF PIGS AS AFFECTED BY PEN SPACE AND ANTIBIOTICS[a] (LEAST SQUARES MEANS)

Antibiotic[b]	---	---	+	+
Floor space (sq ft/pig)	2.5	1.5	2.5	1.5
Starting weight, lb	16.6	16.6	16.6	16.6
Ending weight, lb	29.5	27.2	31.2	29.9
Average daily gain, lb	.46	.43	.52	.47
Average daily feed, lb	.90	.90	1.03	.92
Feed/gain[c]	1.96	2.35	1.95	1.99

[a]Four-week trial.
[b]Aureo SP-250 at 250 g/ton.
[c]Floor space x antibiotic interaction (P<.01).

TABLE 2. SUMMARY OF THE EFFECTS OF ANTIBIOTIC AND FLOOR SPACE ON PIG PERFORMANCE (LEAST SQUARES MEANS)

	Pen space (sq ft)		Antibiotic	
	2.5	1.5	-	+
Starting weight, lb	16.6	16.6	16.6	16.6
Ending weight, lb	30.4	28.6**	28.4	30.6*
Average daily gain, lb	.49	.45	.44	.50*
Average daily feed, lb	.97	.91**	.90	.99**
Feed/gain	1.96	2.17**	2.16	1.97**

*Difference between means significant at the .05 level.
**Differences between means significant at the .01 level.

Summary

The effect of pen space (2.5 or 1.5 sq ft per pig) and antibiotic (0 or Aureo SP-250) on weanling pig performance were studied with 280 weanling pigs. In the 4-week trial, gains were significantly affected by the presence of antibiotic but were not different between pen space groups. Feed efficiency favored pigs which had received antibiotics and also pigs which were allowed greater pen space. The poorest performance was by pigs which received no dietary antibiotics and had the least pen space per pig.